

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
31 March 2005 (31.03.2005)

PCT

(10) International Publication Number
WO 2005/028868 A1

(51) International Patent Classification⁷: **F04B 39/00, 39/12**

(21) International Application Number: **PCT/KR2004/002223**

(22) International Filing Date: **2 September 2004 (02.09.2004)**

(25) Filing Language: **English**

(26) Publication Language: **English**

(30) Priority Data:
10-2003-0065648
22 September 2003 (22.09.2003) KR

(71) Applicant (for all designated States except US): **LG ELECTRONICS INC. [KR/KR]; 20 Yoido-Dong, Yong-dungpo-Gu, Seoul 150-010 (KR).**

(72) Inventor; and

(75) Inventor/Applicant (for US only): **LEE, Min-Woo [KR/KR]; Booyoung Scha Apt., 904-1907 Seokbong maeul, Mugye-Ri, Jangyu-myeon, Gimhae, Gyeongsang-nam-Do, 621-833 (KR).**

(74) Agent: **PARK, Jang-Won; Jewoo Bldg. 5th Floor, 200 Nonhyun-Dong, Gangnam-Gu, Seoul, 135-010 (KR).**

(81) Designated States (unless otherwise indicated, for every kind of national protection available): **AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.**

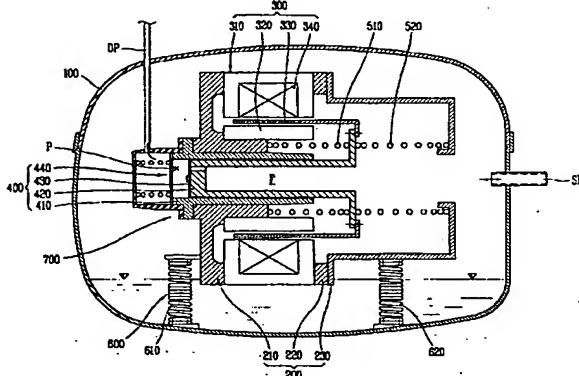
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): **ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).**

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **RECIPROCATING COMPRESSOR HAVING SUPPORTING UNIT ATTENUATING LATERAL DISLACEMENT THEREOF**



WO 2005/028868 A1

(57) Abstract: A reciprocating compressor comprises a casing including a suction pipe (SP) through which a fluid is introduced from the outside and a discharge pipe (DP) through which the fluid is discharged outside and forming a predetermined internal space; a compressor main body (700) positioned in the casing (100), compressing the fluid introduced through the suction pipe (SP) with a linear reciprocating motion of a piston (420) and discharging the compressed fluid through the discharge pipe (DP); and a supporting unit (600) including a plurality of coil springs connecting the compressor main body (700) to the casing (100), wherein the plurality of coil springs (610, 620) includes, respectively, end coils (590) tightly wound so as to be fixed to one surface of the compressor main body (700) and to one surface of the casing (100) and an inner coil (580) having at least one part which is tightly wound and positioned between the end coils (590), thereby minimizing the lateral vibration of the compressor, which is generated in a direction that a reciprocating motor is operated in operation of the reciprocating compressor.